NORTHEASTERN FOREST PEST REPORTER

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FOREST INSECTS

SPRUCE BUDWORM (Choristoneura fumiferana) An extensive egg mass survey is now in progress in northern Maine which will cover both the 300,000 acre area treated in June and outlying areas not treated. The aerial survey, conducted in mid-July, revealed no areas with heavy feeding. The noticeable defoliation was in the light to medium category with the most severe noted in the vicinity of Portage Lake just outside of the control area. Supplementary data on the incidence of parasites and other biotic factors will be utilized, also, to evaluate the present status of the northern Maine outbreak and to determine the potential conditions for 1959.

Budworm populations in New Hampshire, Vermont, and New York are at a very low level. Only one larva was found during the examination of the 50 permanent spruce budworm plots in the Adirondacks.

PINE SAWFLIES In addition to the species reported in the first issue of the REPORTER, the redheaded pine sawfly (Neodiprion lecontei) is again attacking red pine at a number of locations in Saratoga, Lewis, and St. Lawrence Counties, New York. Severe defoliation occurred in a 20-acre planting in Saratoga County that was sprayed in 1957. Present control operations in other plantations apparently unsatisfactory, also — a low-concentration DDT spray was used (1/4 lb. DDT to 6 gal. liquid). Poor timing and inadequate spray coverage may have been contributing factors. All studies and experience have shown that aerially atomized DDT sprays are effective for a maximum of only about 2 weeks. Whenever the appearance of the critical stage extends over a longer period than this, two or more applications of the DDT spray or use of another formulation with longer residual effect is required.

A sawfly (species unknown) was reported causing medium defoliation of 5 acres of pitch pine in Ulster County, New York. A sawfly (probably Neodiprion taedae) is present in large numbers on young loblolly pines in St. Mary's County, Md.

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) Continuing abundant on red pine throughout the region. Direct control measures have been applied over 50 acres of State Forest and 18 acres of private land in Garret County, Md. Infested stems were broken off, followed by a spraying of DDT. This was an attempt to localize the infestation. Less stringent (and expensive) methods should be developed soon to combat this pest. Proper timing of the conventional sprays is a must. Recent work on systemic insecticides at the Central States Station, using Phosdrin and other materials, indicates good possibilities with such formulations.

Adult moths were reported emerging the last week in June in Pennsylvania and northern New Jersey.

SPITTLEBUGS (Aphrophora spp.) Prevalent in white and Scotch pine plantations throughout the eastern portion of the Hudson River Valley and in eastern Essex County, N.Y. Reported also in natural stands of white pine in northeastern Oneida County, N.Y.

BALSAM WOOLLY APHID (Adelges piceae) Generally distributed in fir stands throughout most of Vermont; northernmost infestations known at present are in the vicinity of Danville. Stem attacks predominate, with gout injury restricted to small understory firs. Tree mortality is occurring in many stands. As stem attacks can kill trees in 3 - 5 years, the situation appears to be increasingly serious.

PINE LEAF APHID (Pineus pinifoliae) If there is any doubt as to the tree-killing capacity of this insect, the effects of 5-years' infestations at a number of locations in Vermont should be viewed. The loss of planted white pines and the severe injury to surviving trees at Ripton and Lincoln are enough to convince the most hard-headed skeptics.

BARK BEETLES (Dendroctonus and Ips spp.) Reported active in different sectors of the region. A small plantation in Hampshire County, West Virginia, was completely destroyed by Ips grandicollis when a right-of-way was cut through the planting and the slash left on the ground. The slash served as an excellent breeding site for the beetle. Some heavy infestations of the black turpentine beetle (Dendroctonus terebrans) occurred on white pines up to 16 inches and more in Pendleton County, W. Va.

MISCELLANEOUS INSECTS ON CONIFERS The pine bark aphid (Pineus strobi) reported abundant on white pine in nearly all states -- very heavy on 1-0 stock at the forest tree nursery in Parsons, W. Va. The pine false webworm (Acantholyda erythrocephala) seriously infested 6 acres of young red pine near the summit of Greek Peak, Cortland County, N.Y. Some damage to Scotch pine leaders in a planting in Watson, N.Y. Damage to Norway spruce by the spruce bud scale (Physokermes piceae) reported from Hatboro, Pa. Complete defoliation by the larch sawfly (Pristiphora erichsonii) for 5th year on Japanese larch near Renova, Pa.; 2nd year on Larix sp. near Waterville, and first report of feeding in a highway planting near Emporium, Pa. Fir tip sawfly (Pleuroneura borealis) generally present in northern New Hampshire and Maine -- abundance and injury to fir in eastern Maine is serious concern to Christmas tree operators. Pine gall weevil (Podapion gallicola) causing numerous branch galls on red pines near top of Bald Mountain in New Hampshire.

SADDLED PROMINENT (Heterocampa guttivitta) A serious infestation in its second year is causing heavy defoliation of beech on the southwestern slopes of Bald Mountain, near Chocorua, N.H. In the oaks at a higher elevation on Bald Mountain a severe infestation by the spiny oak worm (Anisota stigma), first reported last year, is on the way out. Noticeable numbers of an associated species, the orange-striped oak worm (Anisota senatoria), still persist in this area, however.

FOREST TENT CATERPILLAR (Malacosoma disstria) Definitely on the increase in Pennsylvania and West Virginia. Seven areas ranging from 50 to 2000 acres have been reported with noticeable defoliation in West Virginia. The parasitic fly, Sarcophaga aldrichi, is very abundant in many of the infested areas in West Virginia, presaging a possible decrease in the intensity of infestation next year.

YELLOW-NECKED CATERPILLAR (Datana ministra) Damage noticeable in eastern New Castle County, Delaware, with as many as 7 colonies noted on a single tree. This insect appears to be generally present in the complex of hardwood defoliators from Massachusetts southward to Maryland.

CICADA (Okanagana rimosa) Oviposition injury by this small cicada was very prevalent on scrub oak, gray birch, striped maple, and aspen over a wide area in the pine-oak barrens of east-central New Hampshire -- most severe in Madison and Ossipee Townships. This might be judged a beneficial insect from the standpoint of favoring pine growth.

MISCELLANEOUS INSECTS ON HARDWOODS A twig pruner (Elaphidion villosum) abundant on oaks generally in Pennsylvania. The fall webworm (Hyphantria cunea) reported from New Jersey and Delaware -- on persimmon and ash in southeastern Sussex County, Del. Asiatic oak weevil (Crytepistomus castaneus) injury common on oaks in Delaware and Maryland -- moderate damage by adults to oak seedlings at Fairland, Md. The leaf roller (Argyrotaxa semipurpurana) caused moderate to heavy defoliation of red, chestnut, and white oaks in Clinton County, Pa. -- adult population reported at peak on July 21. Small, scattered infestations of the satin moth (Stilpnotia salicis) on poplars and willows have been reported from various locations in New York. The locust leaf miner (Chalepis dorsalis) is still abundant in Delaware and Maryland -- apparently on decrease in West Virginia. Maple leaf cutter (Paraclemensia acerifoliella) infestations in Vermont much reduced this year. Elm spanworm (Ennomos subsignarius) stripped about 50 acres of elm and red maple near Whiting, Vt. -- 4th or 5th year of infestation. The serious infestation of the looper, Phigalia titea, covering over 2000 acres on South Branch Mountain, W. Va., has been brought sharply under control by carabid predators.

FOREST DISEASES

Contributions for this issue of the Pest Reporter indicate the carryover effects of last year's drought in reports of "Miscellaneous, Environmental, and Unknown" troubles. The regionwide increase of reports on Dutch Elm Disease probably reflect greater activity of the inoculation of elms by its insect carrier during the 1957 season. The frequent and well-distributed rains have apparently resulted in an increase in rusts and miscellaneous "Foliage Diseases."

CANKERS Reports of stem-cankering diseases have been few, and none indicate an unusual activity or abundance for this category of tree diseases. However, your recorder noted an above-average number of Strumella coryneoidea cankers on red and white oaks in southern Maine. Occasionally, Virus pit cankers were noted on elm trees in the same general region. Vermont reports Cytospora canker (Cytospora kunzei) severe on Colorado blue spruce. Cytospora cankers were observed on spruce on the Fox Forest in New Hampshire, but these appeared to be healing with healthy callus growth.

CHESTNUT BLIGHT (Endothia parasitica) A small group of blight-free American chestnut trees have been under surveillance since 1949 in the vicinity of Westport, N.Y. One of the trees has recently shown signs of blight - verified by Cornell specialists. Your recorder noted several clumps of wild chestnuts near Alfred, Maine. Some were flagging or badly wilted, while others were flowering abundantly on July 24th. The latter, although not flagged or wilted, had many typical, active blight lesions.

FOLIAGE DISEASES Most foliage diseases appear to be more abundant and widespread than usual.

ANTHRACNOSE (Gnomonia veneta and Gloeosporium sp.) Anthracnoses are still in the limelight. Maryland reports sycamore leaf and twig blight common throughout the state. Pennsylvania reports this year's weather was particularly favorable for foliage disease damage on white oak, maple, and sycamore. The latter species has lost two sets of leaves this season and looks very ragged. Sycamore anthracnose is general throughout New York, and has been exceptionally severe in the Hudson Valley, particularly in Orange and Ulster Counties. Oak anthracnose is also prevalent in the same areas, and follows the same pattern of intensity. West Virginia reports heavy anthracnose on white oak throughout the state, as well as on sycamore. From Vermont comes the report that Gnomonia veneta on oak is severe, with some trees defoliated by July 15th. Massachusetts reports that individual ash trees were nearly defoliated in several towns by Gloeosporium, apparently by the action of this fungus in small infected spots. Nearly every leaflet was affected usually near the margin. In some of these cases, nearby trees of the same species and size seem almost unaffected. A similar distribution of anthracnose-affected white oaks has been noted by your recorder in areas of southern New Hampshire and southern Maine. An elm tree in Amherst, Mass. was practically defoliated within a few days by so many infections of a Gloeosporium that the leaves fell before the fungus produced conidia.

LEAF SPOTS, BLIGHTS and BLOTCHES Pennsylvania reports all kinds of leaf spots as numerous. Phyllosticta leaf spots of maple, particularly red maple, appear to be widely evident and abundant in the Northeast, though actual damage is slight. Leaf and shoot blight of aspen (Napicladium tremulae) is not only widespread but its intensity appears to be increasing. The same holds for the willow blight complex (Fusicladium saliciperdum + Physalospora miyabeana). Horsechestnut leaf blotch (Guignardia aesculi) has not been as severe as usual, in spite of weather supposedly favorable for its development. It is now appearing near the coastal regions of the Northeast, however. From Vermont comes a report that Rhytisma acerina is severe on various species of Acer. Other diseases, occurring in Vermont in severe form are Venturia inaequalis on apple — the severest infection since 1947; Monilinia fructicola on

Prunus sp. and Erwinia amylovora on many genera of the Rosaceae. While these latter diseases are of more importance on orchard crops, their prominence this year indicates related troubles on forest trees should be more abundant than usual.

LEAF CASTS Vermont reports Lophodermium needle blight of pine severe in some areas of the state.

POWDERY MILDEWS Massachusetts reports that mature cleistothecia of several powdery mildews were found this summer by the third week of July.

NURSERY DISEASES Pennsylvania reports that damping-off diseases of seedlings appear to be more frequent this year, probably due to high humidity at soil levels and in soils actually too wet for best growth. Melanconis sp. is also reported killing new black walnut seedlings at Tioga, Pa. The new Vermont State Forest Nursery at Essex Junction, Vt. has experienced trouble with dying of 2-year-old Norway spruce and red pine seedlings. About 8,000,000 spruce and red pine seedlings are being grown at this location. The malady appears to be a complex of fungal and nematode troubles, following seeding of nursery beds too soon after conversion of land from agricultural use. Further investigations of the trouble are being made.

ROTS Fomes annosus root rot has been reported from two new locations in Columbia County, N.Y. Identification was verified by Dr. Welch. Your recorder observed a high incidence of Fomes everhartii among oaks on the Massabesic Forest in southern Maine. Many of the trees had fire-scarred butts. This fungus causes gnarled swellings or cankers on oak trunks, and sometimes produces black cinderlike conks such as Poria obliqua produces on birches; these sterile conks were observed in limited numbers on a few of the oaks.

RUSTS

WHITE PINE BLISTER RUST (Cronartium ribicola) The following report from New York arrived too late for inclusion in the previous issue of the PEST REPORTER. Necessary control work is being carried out on 317,000 acres of control area during 1958. Of this, 16,000 acres will be initially worked; 53,000 acres will be re-worked; and 84,000 acres given maintenance coverage. An additional 164,000 acres will be examined to determine portions which need working. It is estimated from previous experience that only 10%, or less, of the total acreage examined will need to be worked. Rodent feeding on blister rust cankers was very heavy in many parts of the state, apparently due to heavy snows. Consequently, the absence of aecial blisters was very noticeable in areas where rodent feeding was heavy. It is also reported that blister rust flags in the Tug Hill section are more plentiful than in past years. Blister rust infection on Ribes appears to be very heavy, in spots. West Virginia reports a favorable spring for white pine blister rust and an unusually heavy crop of aeciospores. Vermont reports a greater abundance of blister rust on pine than usual. New Hampshire states uredial pustules of Cronartium ribicola were sporulating on wild gooseberry plants on July 10th in the vicinity of Charlestown.

ASH LEAF RUST (Puccinia sparganioides) This rust is again prevalent near salt marshes where its overwintering host thrives, according to word from New Hampshire.

MISCELLANEOUS RUSTS New York reports that a Puccinia sp. rust on Ribes is much heavier than usual. Vermont reports the following rusts in greater abundance than usual: Coleosporium asterum = (C. solidaginis) on red pine; Gymnosporangium juniperi-virginiana, G. globosum, and G. clavipes on cedars; and, Puccinia coronata on buckthorn. Massachusetts is beginning to think that many people consider hollyhocks as trees. The Shade Tree Laboratories have received numerous specimens of hollyhock rust, caused by various Puccinia sp., and at least one specimen was labelled "maple."

WILTS

DUTCH ELM DISEASE (Ceratocystis ulmi) Observations and subsequent reports support statements made in the 1st issue of the PEST REPORTER, that this will be a bad year for Dutch elm disease. West Virginia states that wilting elms are noticeable throughout the state, the majority of which have been proven to be affected by Dutch elm disease. Phloem necrosis, a virus disease, is also present. Pennsylvania reports samples received from many parts of the state, particularly those areas where drought was prevalent in 1957. This suggests that drought-affected trees are being attacked by disease-carrying beetles. Maryland reports DED quite active in the Baltimore vicinity. Information from New Hampshire stated that their DED survey began July 1st, and predicted that plenty of infected trees would be found by the scouts. Your recorder observed many infected trees in the vicinity of Manchester, N.H., which appeared to be a "hot spot" of disease concentration. Massachusetts reports DED isolated from twigs from 3 elms on Nantucket. This is the first report from this island, which lies about 15 miles south of Cape Cod in the Atlantic Ocean. Last year this disease was found for the first time on Martha's Vineyard, on one elm. No positive cultures of C. ulmi have been obtained from trees on Martha's Vineyard as yet this year.

OAK WILT (Ceratocystis fagacearum) Pennsylvania reports that stormy weather has hindered air flights for the oak wilt survey. To date, no unusual infestations have been discovered; It is too early to indicate any trend. No new sections, not previously reported, have been found. Oak wilt disease is particularly heavy in Perry County. West Virginia states that oak wilt is running slightly above average for this time of year. Symptoms are seldom typical this season. Several trees died over the winter on old West Virginia sites. According to a recent aerial survey of oak wilt in Maryland, 26 spots were observed in Washington and Alleghany Counties; this is a mountainous area located roughly between Hagerstown and Cumberland, Md.

VERTICILLIUM WILT (Verticillium albo-atrum) Vermont reports Verticillium wilt more severe than usual. Within the city limits of Burlington, at least 12 trees have died. Pennsylvania reports a Norway maple in Mechanicsburg killed by the disease, and of isolating the causal organism from a Chinese chestnut from Mont Alto, Pa.

MISCELLANEOUS, ENVIRONMENTAL or UNKNOWN

ASH DIEBACK New York reports this condition increasing in the Hudson Valley. Judging by this year's observations, ash dieback appears to have increased over most of the Northeast.

CROWN GALL (Agrobacterium tumefaciens) Pennsylvania reports this organism causing galls on Euonymus at Port Kennedy.

TWIG BLIGHT (Diplodia pinea) This has been injuring and killing young to mature white pine in Berks County and young white pine in northeastern Dauphin County, Pa. for the past several seasons.

RESINOSIS OF WHITE PINE New York reports some mortality of white pines in the Champlain Valley, associated with heavy pitch flow at the internodes. The condition also exists in the southern tier of counties, and at various other locations in the state.

WHITE PINE NEEDLE BLIGHT This is rather common and severe this year, according to a report from New Hampshire. Other reports indicate only slight to moderate incidence for this blight in the Northeast.

UNUSUAL CONDITION IN WHITE PINE New Hampshire reports an interesting condition of young white pines from Plainfield township. A cutover pine area of several acres supported abundant white pine reproduction, with trees ranging up to 8 feet in height. Current year's growth appeared overly lush and succulent, with new needles intensely green and somewhat stiff and erect. Bundles of 5 needles frequently looked like 1 thick needle, although they were not fused. Lateral buds near the apex of the new shoot often gave rise to lateral growth, as though apical dominance had lessened. Scales at the base of the needle bundles appeared longer and bigger than normal. Found at only this one location, blister rust personnel could not recall having seen a similar white pine condition before. There was no evidence of fungi or insects, and it was suggested that a frost or freeze might have interfered with the normal metabolism of developing tissues at some critical stage during the spring growth.

WITCHES'-BROOM (Taphrina cerasi) This is common on Prunus pennsylvanica in Vermont and probably more abundant than usual.

SALT DAMAGE, LEAF SCORCH, DIEBACK, and DROUGHT EFFECTS New York reports browning of conifers along highways and generally throughout the state. It is very noticeable on roadside conifers along steep highway grades where heavy salting had been applied. New Hampshire states that many roadside maples are in very poor condition, with circumstantial evidence pointing to salt damage as a contributing factor. Pennsylvania reports leaf scorch of beech present in many areas. Similar observations have been noted on various conifers, maples, oaks, ash, and other tree species. Some of the deciduous trees, particularly maples, show leaf scorch, such as commonly associated with severe drought combined with high winds. These symptoms consistently have been associated with the inability of trees to obtain sufficient water to maintain normal physiological functions. Since frequent, well-distributed rains have occurred throughout the Northeast this season, ample soil moisture has been available. It is believed that last year's drought must have resulted in heavy mortality of the fine, feeding rootlets which, combined with high salt concentrations from heavy salting of highways due to last winter's heavy snows, could well result in the symptoms observed, especially under unfavorable site conditions. However, there have been many cases where salt injury could not have been a contributing cause. An observer in New Hampshire states large numbers of trees in Franconia Notch, Crawford Notch, vicinity of Lake Chocorua, and

also in the Pinkham Notch area exhibit leaf scorch. Affected leaves were brownish at their tips, margins, and frequently between the veins. Leaves were not being cast. Some of the areas looked "brownish" from the road. Maples, birches, beech, ash, and red oak were affected; also, shrubby growth including witch hazel and Viburnum species. There was no evidence of insect or fungus attack. The condition was ascribed to "high winds blowing almost continuously during June 14-17." Frost was a suggested cause, but the symptoms were not typical. "There is the possibility of delayed drought injury resulting from last year's deficiency in rainfall." Massachusetts tells of the poor condition of willows and yellowwood trees. They say, "dying of several species of willow has been reported from many towns. In most cases, the trees were growing in unfavorable sites (sandy soil, hilltops, hillsides) and owners had been forbidden to use water on their trees during the 1957 drought." Borers had attacked most of the trees. In Holyoke, Mass., many yellowwood trees are in poor condition and frequently badly decayed. Generally, they were growing under adverse site conditions. "Evidently the drought has served to clear away many 'marginal' trees. A large proportion of dying city trees falls into this classification." New Hampshire also tells of numerous roadside maples throughout central New Hampshire appearing somewhat chlorot... and many are assuming an "almost-fall coloration." Many are dying from the top down. Salt damage is a major suspect causing these symptoms.

WEATHER EFFECTS West Virginia reports winter damage was heavy in some forest stands. Frost cracks, or seams, are noticeable among oaks throughout the state, and many trees are still fluxing. The same source tells of heavy winds of tornado intensity that hit the tops of several hills in southwestern West Virgini... late last fall and did severe damage. Oaks up to 20" DBH were uprooted. Mass... chusetts reports that trees in the Petersham area were damaged by a July tornado.

MISCELLANEOUS New York reports heavy mortality of black spruce in the town of Watson, Lewis County. Approximately 50 acres are affected. Damage is believed to be the result of change in the water table, caused by beaver dams. Loss of terminal buds is quite extensive in Scotch pine plantations, particularly in the northern part of New York state. Many Christmas tree growers are concerned. The condition is attributed to "Grosbeaks."

Massachusetts reports an exceptionally fine season for fleshy fungi, particularly the Agarics and Boletes. Your recorder also observed an abundance of Boletes, other types of fleshy fungi, and miscellaneous saprophytic fungi in southern Maine. The abundance of Boletes is of more than passing interest, as some species have been proven to be components of mycorrhizal fungi and others are believed to be associated with forest trees in the same capacity.

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By this time you have probably received "Forest Insect and Disease Conditions in the Northeast - 1957." We regret the delay in the publication of this summary, but would like to remind all of you to keep a record of this season's insect and disease pests and to have it available when such information is requested toward the end of this year. Let's hope that next year's summary will appear earlier.